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The McKinsey Global Institute Productivity Studies: Lessons for Canada

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Abstract

The McKinsey Global Institute (MGI) is a think tank based in Washington, D.C. founded in 1990 with the objective of analyzing international productivity levels from both economic and management perspectives. MGI uses microeconomic analysis on a sector-by-sector level to study the effects that industry decisions ultimately have on national productivity. For the most part the productivity drivers identified by MGI can be grouped into three broad areas: competitive factors (concentration, trade protection, deregulation, minimum wages, work rules, and zoning laws); managerial factors (best practice, human capital, capital intensity, and information technology); and demand factors (average income, cyclical factors, and consumer preferences). This paper examines these factors in an attempt to shed light on the causes of Canada-U.S. productivity differences at the industry level. Competitive factors may explain the poor productivity performance of the Canadian financial and cultural service industries relative to their U.S. counterparts, and likewise may explain the high productivity levels of some natural resource industries in Canada relative to the United States. Managerial factors, especially the implementation of new technologies and related processes, may be important in explaining the poor productivity growth in Canada relative to the United States in service industries such as retail trade. Given the similarities between Canada and the United States, the findings of the MGI studies cannot be indiscriminately applied to Canada-U.S. productivity differences at the industry level. However, the MGI studies do put forward a number of useful working hypotheses for analyzing these differences.

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Executive Summary

The McKinsey Global Institute (MGI) is a think tank based in Washington, D.C. founded in 1990 by McKinsey & Company with the objective of analyzing international productivity levels from both economic and management perspectives. Over the last fifteen years, MGI has studied most of the world's major economies. In each case, MGI uses microeconomic analysis on a sector-by-sector level to study the effects that industry decisions ultimately have on national productivity. This paper seeks to synthesize some of these findings to see what comparisons and potential lessons can be drawn for Canada-U.S. productivity level differences on an industry basis.

Time and again, the McKinsey Global Institute's studies have returned to the same story in trying to explain productivity gaps between countries: a lack of competitive intensity. To the extent that certain European and Japanese sectors seem to consistently trail the United States in productivity, these sectors are nearly always characterized by a small number of domestic firms who engage in little price or service competition because of regulatory protection in the form of product market restrictions and trade barriers. MGI finds that such restrictions lead to managerial complacency, a consequent lack of innovation in production processes, and ultimately to a productivity performance below that of the technological leader. Potential factors related to competition that have been identified by MGI as directly affecting productivity are the following.

- **Concentration:** A high market share held by a small number of firms is not necessarily inconsistent with intense competition. Concentration can improve productivity through achieving economies of scale, and it can also boost productivity if it allows a small number of large firms to compete intensely with each other. Examples of highly concentrated yet highly competitive industries include the Dutch banking industry and the Swedish automobile industry.

- **Trade Protection:** Tariffs and quotas reduce productivity through shielding industries from international competition and so making the adoption of global best practices unnecessary. The automobile industry in Germany, France and the United Kingdom, the food processing industry in Japan, and many Swedish service industries are all examples highlighted by MGI of industries whose productivity performance has been hindered by trade protection.

- **Deregulation:** MGI highlights the airline, telecommunications and banking industries as cases in which deregulation has boosted productivity, and in which countries that have chosen to delay or forgo deregulation have consequently suffered lower productivity levels than the early deregulators.

Other competition-related factors can affect productivity in a more indirect fashion.

- **Minimum Wages:** Higher wages typically have the effect of reducing the number of low-skill jobs, as the benefit of these low-skill services is outweighed by the higher cost of providing them. While this has the effect of raising conventionally-measured average labour productivity, MGI argues that overall "service productivity" is negatively affected because the range of services that is offered shrinks.

- **Work Rules:** MGI recognizes that some labour market inflexibilities can be beneficial. However, collective agreement terms that are not adjustable to market realities can negatively affect productivity by preventing productivity-enhancing reorganizations of work.

- **Zoning Laws:** Some European countries have zoning regulations that have a negative impact on productivity by making it difficult for firms to purchase parcels of land of a required size, and through creating an artificial scarcity of land and thereby making land overly expensive. This affects productivity because high rents hinder the ability of smaller firms to innovate, and because larger firms have difficulties achieving optimal scale.

Perhaps even more important than the market conditions under which a firm operates is the way its managers choose to react to those conditions. Competitiveness is the main driver of managerial innovation, but that managerial innovation (or lack thereof) is what affects productivity, first at the firm level, then the industry level, and ultimately at the national level. MGI makes the following observations related to managerial innovation.

- **Best Practice:** Managers need to be aware of best practices in a given industry, and be prepared to implement them. MGI states that sufficient exposure to competition will ensure that this is the case.

- **Human Capital:** MGI finds little evidence that labour skills at the production level differ greatly across countries. However, the qualifications of managers can have a significant impact on productivity, through entrepreneurship and the training of production workers.

- **Marketing:** MGI finds that the U.S. telecommunications sector's productivity performance has been positively affected through marketing, since the resulting greater demand for telecommunication services means that there is greater output for a given investment in fixed capital.

- **Information Technology:** Although few would dispute that investment in information technology (IT) can have a significant impact on productivity growth, MGI concludes that realizing its full benefit requires an appropriate application.

In addition to the effect of IT use on productivity growth, the presence and strong productivity performance of industries producing IT goods also positively affect overall manufacturing productivity growth.

- **Capital Intensity:** MGI finds that improvements in capital intensity are a necessary but not sufficient condition for improvements in productivity. This is because increasing the amount of capital per worker does not necessarily mean that the capital is being used efficiently. Improvements in capital productivity are often dependent on other managerial and competitive factors.

The final category of productivity determinants is demand factors. If a competitive market forces a firm to innovate in order to create better goods and services at lower prices (and costs), then there should be an increase in demand for those improved products, which should more than justify the initial costs of innovation and increase firm profits. There are other demand factors besides this general desire for improved goods that can affect a firm's decisions and thus productivity. Briefly, income levels, cyclical demand factors, and general consumer preferences can all affect the format, output level, and ultimately productivity of a firm.

The McKinsey Global Institute has not produced a report on Canadian productivity. However, the findings from the McKinsey productivity studies on industry productivity differentials between the United States and a number of major developed and developing countries may have relevance for the explanation of industry productivity differentials between the United States and Canada. In some respects, the Canadian economy is a bit of a hybrid between the U.S. free-market system and the more sheltered, socially-conscious systems of countries like France or Sweden. Canada is more globally-exposed than most EU countries, yet it also retains a certain level of trade protection and restricts entry to some domestic sectors. It also has a more developed welfare state than the United States in terms of more government control of social programs such as health care and pensions. Differences between Canada and the United States in these areas can be examined in the context of the productivity drivers identified by the MGI studies in an attempt to shed light on the factors behind Canada-U.S. labour productivity gaps at the industry level.

In terms of competitive factors, Canadian service-sector firms may be less exposed to competition than U.S. firms and have a smaller market in which to operate. The poor productivity performance of financial and cultural industries is consistent with this hypothesis. Likewise, the strong relative performance of Canada's natural resource industries may be related to the intense international competition they face. However, other competitive factors are quite similar across the two countries, such as zoning laws and minimum wages.

Many managerial and consumer behaviour factors are also similar across the two countries. One area in which Canada appears to be lagging the United States to a large degree is the retail trade sector. It appears that managers in the Canadian retail industry have not adopted new technologies and processes as rapidly as their U.S. counterparts.

Wal-Mart has lead the U.S. retail trade industry in this regard, spurring other firms to innovate through competitive pressure. Apparently Wal-Mart has not yet had this effect in Canada.

Given the similarities between Canada and the United States, which are much greater than between the United States and Europe, Japan, Brazil, and India, the findings of the MGI studies cannot be indiscriminately applied to Canada-U.S. productivity differences at the industry level. Further work is needed to dig more deeply into the Canada-U.S. industry productivity gaps, although the MGI studies do put forward a number of useful working hypotheses for such analysis.

The McKinsey Global Institute Productivity Studies: Lessons for Canada[1]

The McKinsey Global Institute (MGI) is a think tank based in Washington, D.C. founded in 1990 by McKinsey & Company with the objective of analyzing international productivity levels from both economic and management perspectives. Over the last fifteen years, MGI has studied most of the world's major economies, from the open and mostly-open models of the United States and United Kingdom to the more sheltered economies of Western Europe and Sweden to the export-intensive yet heavily protected Japanese system. In each case, MGI uses microeconomic analysis on a sector-by-sector level to study the effects that industry decisions ultimately have on national productivity. In most cases, large productivity gaps between countries can be explained by market conditions and managerial decisions at the sectoral level. MGI argues that productivity growth stems from innovative managerial behaviour, which itself is necessitated by a competitive market. In this respect, the United States sets productivity benchmarks in most sectors by virtue of being the world's most competitive economy. This paper seeks to synthesize some of these findings to see what comparisons and potential lessons can be drawn for Canada-U.S. productivity level differences on an industry basis.

This paper has two main sections. The first deals with the findings of the McKinsey Global Institute. This section outlines factors that affect competitive intensity within a country, both in terms of direct regulations such as trade protection and indirect regulations such as minimum wages; looks at how managers react to these competitive conditions and deals with the concept of adopting global best practice to improve productivity, as well as the potential impact of information technology (IT) investment; and examines how demand factors can also influence the behaviour of firms and industries and therefore their level of productivity. The second section outlines the elements of MGI's analysis that can be applied to Canada itself.

Section One: Synthesis of MGI Studies

I. Competitive Factors

Time and again, the McKinsey Global Institute's studies have returned to the same story in trying to explain productivity gaps between countries: a lack of competitive intensity. To the extent that certain European and Japanese sectors seem to consistently trail the United States in productivity, these sectors are nearly always characterized by a small number of domestic firms who engage in little price or service competition because

[1] This report was prepared as part of a project undertaken by the Centre for the Study of Living Standards for the Conference Board of Canada. This project involved an in-depth study of productivity levels and their determinants in a number of industries in Canada and the United States, aimed at providing insights on the causes of the overall Canada-U.S. productivity and income gaps. The results of this project are published in the 2004 edition of the Conference Board of Canada's annual publication *Performance and Potential*. All studies by the McKinsey Global Institute discussed in this report are available for free download from the McKinsey website, at www.mckinsey.com/knowledge/mgi.

of regulatory protection in the form of product market restrictions and trade barriers. This is true in the German automotive market, which has always faced substantial import tariffs by itself and through the EU; it is true in the Swedish construction industry, which faces supply oligopolies and cartels for most of its inputs; it is true in the enormous Japanese food processing sector and countless other markets throughout the world. In every case, protection from competition, domestic or foreign, has led to managerial complacency and a lack of innovation in production processes, the end result being that the United States, the world's most exposed country to domestic and international competitive forces, has surged ahead in productivity because of its ability to adapt to global best practices in both manufacturing and services. Competitive intensity almost always drives managerial innovation, and so MGI has evaluated the effects that both direct and indirect regulations can have on competitive intensity. Direct regulations include concentration laws, trade protection, and conversely, deregulation. Indirect regulations include minimum wage standards, union work rules, and zoning laws.

A. Concentration

The 1997 MGI study on the banking sector in the Netherlands found it to be the most productive in the world. Why? Its relatively high level of concentration. Paradoxically, such a situation is not necessarily contradictory to the idea of market competition. It is true that some of Europe's state monopolies and oligopolies have been non-competitive, but that has primarily been because of barriers to foreign entry and product market restrictions (such as pricing rules, hours of operation restrictions, and zoning laws), not simply market share. As markets that are open to global competition have shown, sometimes it only takes two firms to generate intense competition. In Sweden, Volvo and Scania alone have been able to achieve world-class productivity levels by competing with each other and with foreign firms.

The same is true in Dutch banking, where concentration has improved competition and productivity, and not decreased them as might be expected. The top three banks in the Netherlands control 75 per cent of the market, as opposed to only 10 per cent for the top three in the United States. Once the Postbank introduced its system of electronic payments, the other banks joined together to create a competing payments system and the final result of this collaboration was the most efficient, standardized IT system in the banking world. As well, concentration in Dutch banking has been aided by a concentration in Dutch population density. While the Netherlands has more branches per square kilometre than either the United States or France (its nearest productivity competitors), due to its small geographic area it also has fewer branches per capita because sector concentration has prevented excessive competition through branch expansion, making the Netherlands' branch banking system also the world's most efficient. The German banking system, for example, has a similar electronic payments system to the Netherlands but achieves barely half its labour productivity because of its enormous branch system.

The United States actually has the most efficient centralized processing in the banking industry. It falls behind the Netherlands in overall labour productivity, however,

partly because of its dispersed population and its larger branch system. To a certain extent, this does illustrate a natural advantage on the part of the Netherlands. At the same time, however, the banking industry in the United States is among the most fragmented in the world as most banks compete only at the state level, even after some deregulation in the 1980s. This lack of concentration has made IT integration difficult and costly. Even barring that, American consumers have been unique in still preferring chequing accounts to electronic payments.

In highly concentrated sectors, the impact of managerial or technological innovation is usually greater, as it is crucial to achieve economies of scale. In their report on productivity growth in France and Germany, the McKinsey Global Institute (2002) advocate consolidation in several sectors, including telecommunications, road freight, and especially banking. This was based on the experience of the banking system in the Netherlands, where the advantages of consolidation in terms of IT adoption had become apparent. This has also been the experience of American wholesaling, where productivity growth reached record levels in the late 1990s as consolidation allowed for the widespread adoption of warehouse automation. As MGI point out, while low competitive intensity may create a situation of concentration, concentration in and of itself does not necessarily create a situation of low competitive intensity.

B. Trade Protection

While there are a number of indirect ways to shelter domestic producers within a sector, there is no more obvious direct method than through trade protection in the form of tariffs or import quotas. While trade controls may serve to promote a domestic sector within a country, that sector generally ends up being non-competitive and well behind in global productivity because of its lack of exposure to global best practice. Going back to their 1993 study on manufacturing, it has always been the conclusion of MGI that trade protection is rarely desirable from a long-term perspective. In the automotive industry, for example, U.S. car producers were for many years sheltered from Japanese competition, and were thus able to survive domestically without having to achieve Japanese productivity levels. It was only when the market was finally opened up that they achieved close to the productivity levels realized by Japan. The German auto market, meanwhile, remained sheltered and has always trailed the other two significantly in terms of productivity. The EU currently puts a 10 per cent tariff on imported vehicles, so the automotive sectors in France and the United Kingdom are in the same position.

Trade protection can be the primary cause of reduced productivity or just a secondary factor. For example, barriers to trade are only a secondary factor in explaining the low productivity levels in the U.S. steel industry relative to that in Germany and Japan, since all three countries have traditionally protected their steel industries. The primary reason that the United States trails Japan and Germany is thus not tariffs, but rather the U.S. “minimill” system that lends itself poorly to capital investment. Japan’s steel industry has been the most protected but also the most productive because of its process innovations. On the other hand, trade barriers are the primary cause of lower productivity in the EU electronics industry relative to the U.S. and Japanese electronics

industries. Productivity levels in the electronics industry are relatively equal in the United States and Japan, as a result of global competition. In contrast, EU-subsidized computer producers like Siemens have always trailed badly.

Similarly, the level of labour productivity in the Japanese food processing industry has been less than a third of the U.S. level because of excessive protection. Although Japan initially protected most of its sectors as "infant industries" in the early post-war period, it relaxed those conditions somewhat in the sectors it promoted for export such as cars, electronics, and steel. All three sectors ended up having higher labour productivity than either their counterparts in the United States or in Germany. However, Japan has kept its other sectors sheltered from the global marketplace. This has created a dual economy as these sectors have failed to develop high productivity levels. In food processing, three times the number of firms than in the United States only produce a third of the output. As well, the employment in food processing is so large that its productivity gap more than negates Japan's labour productivity advantages in its export sectors, placing Japan behind the United States in overall manufacturing labour productivity. Barriers to trade have also hindered productivity in the German beer industry, where protection has allowed small, craft-based breweries to survive without having to consolidate to achieve economies of scale like the large breweries in the United States. The study makes no adjustments for quality, however.

Still, the Dutch food processing industry is heavily protected yet sets the world productivity benchmark in output per hour for the dairy industry. The Netherlands concentrates on bulk dairy production for export, and as such has been able to achieve efficiency through scale. This is in turn heavily supported by EU import tariffs and export subsidies, making effective dairy prices in the Netherlands four times the world market price. The same does not hold for Dutch meat processing, however, which is similarly protected but fragmented and so, unlike the consolidated dairy industry, has been unable to attain efficient scale. In this respect, the Dutch dairy industry has been similar to Japan's industrial export sectors that have been protected but only truly prospered through mass production and scale. However, the strong productivity performance of the Dutch dairy industry may not be sustainable. Increasing competition from other bulk dairy producing countries such as Poland and New Zealand will force the Dutch industry to focus on more specialized dairy products. Unlike bulk dairy, the Netherlands may not be able to achieve optimal scale in the production of these premium dairy products.

The more common case is Sweden, which has traditionally sheltered a full 75 per cent of its economy (mostly service industries) and trailed both the United States and Western Europe badly in terms of labour productivity levels throughout the 1980s and 1990s. By contrast, Sweden's openly traded manufacturing sectors, such as the heavy truck production of Volvo and Scania, have achieved global best-practice standards through competition. There are few exceptions to the rule that an exposed sector is a more productive one.

C. Deregulation

Deregulation has been primarily an American phenomenon. The most commonly cited example has been the U.S. airline industry, which was deregulated in the late 1970s and engaged in price wars through the 1980s that created such intense competition that the hub-and-spoke system developed. By establishing hub airports that had scheduled waves of flights coming in and going out at certain periods during the day, the major U.S. airlines were able to offer consumers more frequent flights at low cost. Europe has begun the process of deregulation more recently, but as most countries had state-run monopolies or duopolies in the 1980s, Europe's average level of labour productivity in the airline industry in 1989 was only about 72 per cent that of the United States.

In contrast to this low level of labour productivity in the airline industry in Europe relative to the United States, U.S. and European carriers appear to have had more equal capital productivity levels in terms of flight loads. On the ground, however, the legacy of state-ownership and union rules has persisted through overstaffing in Europe, while American maintenance and sales tend to be more streamlined since deregulation has allowed for reorganization. The larger size of the U.S. network and airlines has also created better economies of scale in maintenance.

The U.S. inter-city domestic airline market has always been impenetrable to European competitors. Deregulation did not immediately create an environment of intense competition in the United States, but the long-run impact on competition has been undeniable. Thus, as European countries seek to close their productivity gaps with the United States through deregulation, a complete opening of their markets to American competition may make the transition quicker than it was in the United States.

The same has been true in telecommunications, where the United States and Japan deregulated in the 1980s while Germany waited until the late 1990s. Telecommunications has always been a capital-intensive industry with large fixed networks and high infrastructure costs, so in some respects it has always lent itself to natural monopolies in local markets (Nippon Telegraph and Telephone Corporation (NTT) in Japan and the regional Bells in the United States). Deregulation has served to open up the long-distance calling markets to competition, however, and wireless telecom has followed the same pattern in recent years. Labour productivity levels have traditionally been nearly equivalent in all three countries; Germany fell behind slightly as the United States and Japan gradually reduced their labour inputs since technological innovation and network restructuring have been easier after deregulation. The key difference is that the United States has dominated Japan and Germany in capital productivity because of higher demand for calling and thus greater use of the network. This has primarily been a marketing issue that will be discussed later, but it has only been possible through deregulation. The story for electrical utilities is almost identical.

Banking is another textbook industry for the potential advantages of deregulation. When the Swedish banking sector deregulated in the 1980s, it quickly transformed itself from a non-competitive oligopolistic structure that did little to encourage personal saving

into a profit-driven industry that competed on interest rates and began to offer a wider range of mortgage and security services. Customers became more sophisticated in their banking preferences and as the demand for financial services increased, Swedish banks began to reorganize and become more efficient to keep pace. By 1992, Sweden had passed Germany and the United Kingdom in total factor productivity in banking and trailed only the United States, according to the MGI (1995) study.

D. Minimum wage

On the side of indirect anti-competitive regulations, one of the most obvious social and economic distinctions between the United States and European labour markets is the difference in their respective minimum wages. Other than the United Kingdom, which instituted a minimum wage in 1999 roughly in line with the U.S. minimum wage in absolute terms, the average minimum wage in Europe is significantly higher than in the United States. And as the lowest wages tend to go to the lowest-skill positions, a higher minimum wage naturally affects employment and productivity figures in low-skill sectors, most particularly general merchandising retail.

The net effect of higher minimum wages in the retail sector is that the lowest-skill positions, such as grocery baggers in supermarkets, are phased out because their cost outweighs the average consumer's willingness to pay for their services. The labour productivity associated with these jobs is low, and so while employment may fall with their elimination, aggregate labour productivity is higher through a composition effect. From a measurement standpoint, this creates a comparison problem between the United States and countries like France, Sweden, and Germany. MGI measure retail labour productivity as sales divided by total workers, and these low-skill positions add to the number of workers but do not add to the number of sales to as large a degree as higher-skill jobs. European productivity is thus higher relative to the United States than would be the case if there were the same proportion of low-skill jobs in each country, since the same number of sales is associated with higher employment in the United States than in Europe.

The 1997 McKinsey study of the Netherlands has been the only attempt to correct for this effect by comparing the absolute productivity levels of large multinational chains like Home Depot and IKEA versus their relative employment levels. The assumption made is that because of their similar global formats and standardized training, these large chains generate the same level of service and efficiency regardless of country (assuming also that labour skills are equal in each country, which is reasonable for low-skill retail positions). If absolute productivity is taken as a constant but one country, usually the United States, employs more workers in each chain, those additional workers are assumed to be providing extra retail service. So where traditional productivity figures place the United States no more than 5 per cent ahead of the Netherlands in retail productivity, adding the greater service level in the United States to U.S. output and hence productivity increases that figure to almost 20 per cent. However, Baily and Zitzewitz (2001) point out that this effect is slightly overstated by assuming each additional worker provides the same increase in services.

In the Netherlands, the biggest problem with the minimum wage is not necessarily the wage level itself but its relationship to unemployment benefits. Unemployment benefits in the Netherlands are, on average, 78 per cent of the minimum wage, while the rest of Europe averages 64 per cent and only Denmark has a higher ratio than the Netherlands. This provides little incentive for low-skill workers to find employment. At the same time, social security taxes represent 32 per cent of the cost of hiring a worker at a minimum-wage salary, versus a 25 per cent average in Europe and surpassed only by Italy, Greece, and Belgium. There is thus also little incentive for employers to hire low-skill workers. It is estimated that a full 9 per cent of the Dutch population is on some form of social or disability assistance and not counted in unemployment statistics. This helps explain why the United States has over 20 per cent more employment in similar retail operations, although it is also important to note that the minimum wage in the United States is barely half what it is in the Netherlands (in 1995, about $5.10 U.S. versus $9.60 U.S.), and that a full 35 per cent of the U.S. retail sector works for less than the Dutch minimum wage.

The same holds true for France and Germany. MGI's 2002 study of their total economy productivity gap with the United States showed France to be 4 per cent ahead of the United States and Germany 6 per cent behind the United States (with all three being about equal in retail). These estimates are based on unadjusted labour productivity, i.e. simply GDP (converted to U.S. dollars by way of Purchasing Power Parity (PPP)) divided by total hours worked. But after making an adjustment to account for the effect of minimum wages on the composition of employment (over 10 per cent of the U.S. workforce is employed below the minimum wage in either France or Germany[2]), the level of labour productivity in each country relative to that in the United States falls back by seven percentage points.[3] The impact is felt mostly in the retail sector, which tends to comprise about 5 per cent of GDP and 10 per cent of employment in both the United States and Europe.

In 1995, the minimum wage in France and Germany (converted to U.S. dollars at PPP) was about double that in the United States. This is the primary reason why a branch of a retail firm in the United States may have 50 per cent more employees than its European counterpart. The actual productivity levels between those branches are not necessarily different: employees at a U.S. IKEA store are no more or less productive and efficient than those at a French IKEA outlet. Because an American branch can afford to hire more employees, however, the differences between the two countries manifest themselves in service levels like longer opening hours and more checkout lines. When this higher level of services is accounted for – and retail services, while not physical output, are consciously consumed just as retail goods are – any European advantage in

[2] Germany has no official minimum wage, as minimum provisions are usually determined through collective bargaining by sector and location. However, an effective minimum wage can be calculated by considering the average minimum provisions of these collective contracts.

[3] It is not clear precisely how this adjustment is made, but it presumably involves boosting U.S. output and hence labour productivity by some proportion related to the number of U.S. workers employed below the minimum wage in France or Germany. The full effect of seven percentage points also includes a one to two percentage point effect of comparing at the business sector level rather than the total economy level.

productivity statistics from having fewer employees disappears. MGI's intention is to combine traditional output productivity with the more nebulous concept of productivity adjusted for service levels.

The existence and level of a minimum wage is a social issue within each country and outside the scope of this review. But as the McKinsey Global Institute has frequently argued, the effect of a minimum wage on increasing low-skilled labour unemployment at least negates the effect of increasing the living standards of those that manage to find or keep jobs. MGI have often recommended a lower minimum wage in most European countries, combined with an earned income tax credit or negative income tax for low-wage workers that is designed to have the same effect.

E. Work Rules

There are other factors that can make a country's labour markets relatively inflexible, such as high levels of unionization and stringent work rules. The United States and United Kingdom are far ahead of the rest of Europe by most flexibility measures such as less stringent hiring and firing requirements. The existence of a lower minimum wage is partly responsible for these effects, but at the same time, the United States and the United Kingdom rely much more heavily on part-time labour, have fewer long-term contracts and have less centralized collective bargaining than continental Europe.

There are some advantages to less flexible labour markets. Long-term employment contracts, while sometimes impeding the productivity-enhancing redeployment of workers from low- to high-productivity jobs, can also allow for a greater degree of specialized training, as is the case in the German automotive sector. Rapid turnover, part-time employment, and low wages in the United States, the United Kingdom and Japan make such training difficult, but at the same time, that flexibility allows for greater innovation and development in service sectors and a lower overall level of unemployment. It also allows for the American and Japanese electronics industries to better adjust for seasonal demand fluctuations, particularly in December. And the same inflexibility that allows for specialized training in German auto manufacturing also caused Germany to fall well behind in productivity during the 1990s since management was unable to restructure the workforce to adopt global best-practice organization techniques as they were developed by Japan and the United States.

In their 1992 study of service sectors across countries, MGI concluded that unions and labour rules played a role in reducing labour productivity levels in low-competition industries like airlines and telecom, but were less of a factor in high-competition industries. The 1993 MGI study of manufacturing between Japan, the United States, and Germany echoed this conclusion. Metalworking, steel, and automotive production have always experienced about the same level of unionization in the United States as in Germany, but exposure to global competition, usually from Japan, eventually forced the United States to modify its work rules to remain productive. No such pressure existed in Germany because of industry sheltering, and so work rules there are still restrictive.

In Sweden, to take another example, both the automotive and construction industries have been affected by strict union rules. Sweden was relatively open to trade during the 1980s but only felt global competitive pressure once Japanese brands like Lexus began competing in the luxury car market with Saab and Volvo. Strict work rules then began to hinder the ability of these Swedish firms to adopt best practice, and a productivity gap emerged. As Sweden's unions are organized along craft lines, not sector lines, the relaxation of rules governing what tasks workers were allowed to perform was almost impossible. Growing international competitive pressure and the recession from 1990 to 1993 eventually forced the unions to relax their layoff and task-distribution conditions, which allowed the Swedish auto manufacturers to restructure their production processes. Similarly, having a union for nearly every major building task made construction highly disintegrated and costly compared to the much more streamlined process in the United States. Another observation on Swedish work rules is that their effect is most often felt in small and medium-sized companies that may be less willing to absorb the legal and financial settlement costs of laying off employees and so restrict their hiring in the first place.

Perhaps ironically, work rules did not hinder Sweden in becoming the global leader in public transport productivity. In comparing bus and train systems between European countries (the United States is much larger and uses public transport to a much lesser degree, so could not be included in the analysis on a comparable basis), Sweden and in particular Stockholm was easily the most productive by virtue of its efficient use of labour. Almost 60 per cent of paid driver hours in Sweden are spent driving, compared to only 35 per cent in the Netherlands, for example. This difference is due to less restrictive work rules in Sweden. As costs for similar levels of service are thus lower, the Swedish transit system has been able to expand more. As more people use the larger system and traffic congestion decreases, buses are able to travel faster and provide even more service, thus achieving benefits from scale.

Sweden and the Netherlands have similar public transport unions whose members receive similar benefits, but the difference is that Sweden's unions agreed to accept less stringent work rules, which allowed the industry to improve productivity, in exchange for higher pay and performance incentives. So while drivers in both countries may have similar aggregate break times, for example, the timing of these breaks has been made more flexible in Sweden than in the Netherlands, allowing longer periods of continuous driving time and thus more service. At the same time, Swedish municipalities own the rolling capital stock for bus service and decide on the level of route provision, but allow private services to bid on three-to-five-year contracts for portions of the network. As this has opened the system to competition, it has also put more of an emphasis on productivity. As Baily and Zitzewitz (2001) point out, Sweden saw a 45 per cent gain in productivity in public transport due to competition over the 1980-1995 period, and a similar system in the United Kingdom increased transport productivity by 71 per cent over the same period. Japan has also moved toward such a competitive environment.

In the MGI (1997b) report on the Netherlands it was found that the Dutch have the strictest layoff conditions in Europe. Extremely short temporary labour contracts and lengthy layoff notification periods impede both turnover and the relaxation of work rules. This is not only true in public transit, where lower labour utilization has lead to a 47 per cent lower labour productivity level in the Netherlands than in Sweden, but also in the retail banking system, which otherwise is among the most productive in the world. The Netherlands may be the only country in the world with both strict union rules and a service-sector-oriented economy, however: it restructured away from manufacturing in the 1970s and no longer faces the problems France and Germany have in shedding manufacturing jobs and creating a larger service sector with better growth potential. Still, in almost every country with relatively inflexible labour it is the recommendation of the McKinsey Institute that work rules be relaxed, whether it be German or French manufacturing, the Dutch service industry, or Swedish construction. As the Swedish public transport example shows, a simple reworking of union rules combined with the familiar recommendation of healthy competition can pay significant dividends in productivity growth.

F. Zoning Laws

Zoning laws and other product market restrictions are yet other areas where regulation tends to adversely affect European productivity in terms of output with respect to the United States. Land in Europe tends to be comparatively more expensive than in the United States and is often parceled in much smaller plots. This can have spillover effects in several sectors. The inability to find space for a large shopping mall in France, Germany, or Sweden, for example, not only affects the retail sector but also the construction sector that otherwise would have built it.

Municipalities in France and Germany have little incentive to give up tracts of suburban land for large housing developments because revenue from municipal property taxes is low (unlike in the United States and Canada) and therefore does not cover the costs of the public infrastructure necessary to support such large developments.[4] As a result, there is no mass construction of standardized single-family housing, so the construction sector cannot achieve economies of scale. Productivity in this sector is consequently significantly lower than in the United States. This artificial scarcity of land keeps prices up and leaves landowners trying to realize speculative profits, with the result that land is four times more expensive in Germany and the Netherlands than in the United States, and more than twice as expensive in France than in the United States. The Netherlands has a government subsidy program to finance designated "growth" areas in an attempt to mitigate this, but the government has still only designated 8 per cent of the country's land for housing versus 70 per cent for agriculture.

[4] Presumably there is no mechanism by which French and German municipalities can increase property tax rates by enough to raise revenues sufficient to cover these infrastructure costs. MGI (1997a) reports that annual property taxes in the United States are on average two per cent of the value of the house, compared to about 0.15 per cent in West Germany. Further, U.S. municipalities typically charge "impact fees" to developers to cover some of these infrastructure costs, while Germany and France have not been able to either due to legal or institutional constraints.

In France in particular, zoning laws also limit retail innovation. Modern chains end up paying much higher rental fees than traditional and established large-format French retailers like hypermarkets and department stores. As well, high entry fees, in terms of cash payments required by law to takeover existing leases, tend to discourage foreign chains from entering the French market. Germany suffers from the same problem, not because of its rental system but because of its exorbitant land prices. The Netherlands has even more restrictive retail zoning laws than France does. All three countries' governments have also mandated restrictive opening, closing, and weekend hours in an effort to protect traditional retailers and limit entry. For all these reasons, competitive intensity and hence productivity levels are much lower in these countries than in the United States where a general-format retailer like Wal-Mart is allowed to expand and stay open longer. Zoning laws, through limiting expansion, also discourage the hiring of low-skill labour much like the minimum wage does. Though capacity utilization and productivity may appear higher as a result, these firms lack the business innovation American chains must develop because of competitive pressure.

The same is true even in the United Kingdom, which has deregulated labour and capital markets like the United States but still has restrictive land use regulations. Although municipalities have more revenue-raising ability through property taxation in the United Kingdom, the complex, time-consuming nature of local planning has limited retail expansion just as much as in France or Germany. In the United Kingdom, many inefficient traditional retailers, particularly supermarkets, have been able to stay in business because restrictions on the size of locations have prevented the strongest retailers from achieving economies of scale, and competitive intensity has hence suffered. The United Kingdom thus ends up somewhere between the United States and continental Europe in terms of retail productivity: its retailers can provide a fuller range of services as in the United States because of the low minimum wage; but they are also restricted from expanding, as is the case in France, Germany, and the Netherlands. In each case the McKinsey Global Institute favours the relaxation of these zoning laws. As is pointed out in MGI (1995), Sweden moved in this direction in retail during the 1990s and saw productivity gains as a result.

II. Managerial Factors

Perhaps even more important than the market conditions under which a firm operates is the way its managers choose to react to those conditions. Competitiveness is the main driver of managerial innovation, but managerial innovation (or lack thereof) is what affects productivity, first at the firm level, then the industry level, and ultimately at the national level. American managers are typically able to pursue profits more freely than European managers, who are perhaps forced to achieve social goals above profits to a greater extent than in the United States. This could be due to a combination of different demands of shareholders across countries, different regulatory frameworks within which companies operate, and different levels of competitive intensity. It should also be mentioned that, while social objectives may hamper the productivity of firms to some degree, they have a positive effect on well-being. In any case, most of the productivity

differences between the United States and Western Europe are related to this distinction in one way or another. This section examines the concept of global best practice, looks at potential differences in labour skill between countries, and analyzes the effects of marketing on productivity. It also deals with the newer challenge of IT (information technology) investment and its effect on capital intensity.

A. Adopting Best Practice

The key reason the McKinsey Global Institute advocates having competitive, exposed sectors is because of the concept of "best practice." Theoretically, if a production process takes place in several different countries, one of those countries (or at least one firm within the country) will develop the best, most efficient method of production. As that firm becomes more productive and other firms within the country follow its example, the country itself will gain a productivity advantage over other countries within that sector. The easiest way for other countries to catch up is to change their production processes as well, but some may be unwilling or unable to do this. If a firm faces little competition within its own borders, it may have little incentive to undertake the initial costs necessary to improve productivity through the adoption of best practice unless its profits depend on it. Similarly, a domestic sector protected by barriers to foreign competition is not considered "exposed" to best practices and need not worry about keeping pace with foreign rivals. Competition is therefore the driver of this crucial aspect of managerial behaviour: managers in competitive sectors must adopt best practice or fail, while managers in non-competitive sectors need not worry about changing their original processes.

The quickest way that a country can become exposed to global best practice is through foreign direct investment, or in other words through transplant operations such as Japanese automotive plants in the United States. This is often considered a more palatable option than trade since it directly increases productivity within the transplant country and does not displace workers as trade does. Transplant operations are still far more common in the United States, the most "exposed" country in the world, than in Japan or Europe. This is due to mostly deregulated sectors and relatively easy entry into the market for corporate control in the United States. Through transplant operations as well as openness to trade, the United States has adopted the best practice of other countries to a much greater degree than any country in the world.

In electronics, for example, Japan became the world leader in the 1970s and 1980s when its previously protected industries became exposed to international competition, and the United States and Germany were forced to catch up. Since the United States was open to trade and to Japanese transplant operations, it developed best-practice processes fairly quickly and ended up scaling its industry back to high-end consumer electronics and outsourcing the production of most other electronic goods. While there were frictional problems in the short-run, this specialization has helped the United States in the long-term. German electronics, on the other hand, remained a protected sector. This was less of a problem since the German market primarily remained closed to Japanese imports, but once Japanese electronics and software

companies began setting up transplant operations in the United Kingdom and elsewhere, Germany began to face direct competition and found itself lagging badly.

Dispersion of best practice can also be an entirely domestic phenomenon, as Wal-Mart has proven in the U.S. retail sector. Wal-Mart became the largest retailer in the United States through a combination of scale, supply chain efficiency, and basic technological innovations like electronic tracking and scanning. And while Wal-Mart's growth has pushed several firms out of the retail market, it has also forced other competitors like Target to adopt many of the same techniques to remain profitable, thus reshaping the formats and services offered by most firms within the sector. Most notably, however, is that despite the growth of Wal-Mart's operation, a full two-thirds of the improvement in retail labour productivity from adopting new practices in the United States between 1995 and 2000 is attributable not to Wal-Mart, but to competitors in retail following Wal-Mart's example (MGI, 2001).

Most of the barriers to the adoption of global best practice have already been outlined. Anything that creates a barrier to competition will also create a barrier to adopting best practice. It is therefore almost always the recommendation of the McKinsey Global Institute that governments find an equitable way to introduce competition, since productivity increases invariably follow.

B. Human Capital and Labour Skill

Perhaps the most important reason for concentrating on managerial behaviour is the fact that MGI finds little reason to believe that skills of production workers differ greatly between countries. Productivity differences originate in the boardroom, not the shop floor. Higher labour productivity levels in the manufacturing industry in Japan and Germany than in the United States in the 1980s were not driven by some German or Japanese work ethic instilled in production workers, as was frequently bemoaned in the United States at this time. Rather, they were driven by more efficient production processes in Germany and Japan in the automobile industry. Similar processes have since been adopted by the United States, where workers appear to be just as capable at implementing them.

The most in-depth MGI study in this area is the 1993 manufacturing report (MGI, 1993), especially with regard to American automotive production versus Japanese automotive production. What differences exist between workers in each country is not a result of intrinsic skills but of training, which is the responsibility of management. Japanese transplant factories in the United States, using American labour, were able to achieve similar productivity levels to initially superior Japanese plants, as were domestic U.S. plants once they were exposed to Japanese practices.

Where there can be significant human capital differences, then, is on the managerial side. In the Netherlands, for example, the McKinsey Global Institute (1997b) attributed the slow growth of the software sector to a lack of entrepreneurship and poor university business training. In this country there are few high-tech specialists, few

connections between universities and high-tech businesses as in the United States, and thus few reasons for venture capitalists to invest heavily in the sector. There may also be greater discouragement to potential entrepreneurs through stricter bankruptcy procedures than in the United States. But whether or not there is more intrinsic entrepreneurship in the United States than in other countries (and this is highly debatable), developing entrepreneurship may be possible in a business training context.

C. Marketing

One area of managerial behaviour that becomes much more important in a competitive environment is marketing. There is perhaps no greater example of the impact of marketing on productivity than in the telecommunications sector, where the United States is more productive than Europe. Telecommunications requires a large network of fixed capital. While labour productivity in the telecommunications sector has traditionally been similar in the United States, France, and Germany, the same has not been true for capital productivity. Capital productivity in telecommunications in the United States is higher than in France and Germany because the fixed network in the United States is used much more heavily than in Europe. With broadly similar labour productivity performance, the higher U.S. capital productivity means that total factor productivity is also higher in the United States than in France or Germany.

The more intensive use of the fixed network in the United States is almost entirely the result of aggressive marketing on the part of American phone companies. In the United States, emphasis on flat-rate long-distance plans, toll-free numbers, and services such as call waiting and voicemail have made call volume per capita more than double any European nation. This is partly a reflection of the size and population dispersion of the United States, particularly where long-distance calling is concerned; but even so, telephone usage has never been encouraged on such a scale in France or Germany. It was even the policy of Deutsche Telekom for a while to tell consumers to keep their calls short, which practically amounts to anti-marketing.

Marketing is the same as IT expenditure, in that companies have little incentive to pursue it unless they face intense competition, in which case it may become a necessity to stay productive. As a result, heavy marketing in Europe has generally occurred after a sector has been deregulated, as was the case with Swedish banking.

D. IT And Productivity Growth

The story of the U.S. economy in the second half of the 1990s is one of tremendous labour productivity growth. Labour productivity in the U.S. non-farm business sector grew by 2.5 per cent per year in 1995-2000 despite only growing 1.4 per cent per year in 1972-1995. Over the same period, IT (information technology) investment nearly doubled, and it has often been posited that this heavy investment was the primary driver behind labour productivity growth. According to MGI, this is not entirely true: the U.S. labour productivity growth acceleration was driven mainly by six "jumping" sectors (semiconductors, computers, telecommunications, retail, wholesale,

and securities), and IT only played a crucial role in a few of these sectors. Most of the time, productivity was driven by a factor that was only partially related to IT, such as intense competition in the case of retail (Wal-Mart) and semiconductors (Intel, AMD), device innovations outside the computer manufacturing sector itself, or low-tech warehouse automation as in the wholesaling industry. As well, much IT investment between 1995 and 1999 was due to unique factors, such as Y2K preparedness, which are not expected to be related to productivity growth.

That being said, few would dispute that IT investment plays an important role in productivity growth. Although the application of IT may not have been as large a factor in the productivity growth acceleration as it has been thought in the past, the production of IT in the form of computers and semiconductors certainly was an important factor, as these two sectors alone accounted for 22 per cent of the United States' productivity growth acceleration between 1987-1995 and 1995-1999 (MGI, 2001). IT is different from regular capital investment in that, under certain circumstances, it can have a far greater effect in terms of magnifying labour productivity growth than traditional capital like machinery and tools. But it requires appropriateness in its application, as will later be discussed.

In France and Germany, IT manufacturing as a proportion of total GDP is 60 per cent that in the United States. According to MGI (2002), this explains a full third of the difference between labour productivity growth in the United States and that in France and Germany in 1995-2000. But the lower level of IT *spending* in France and Germany relative to that in the United States does not explain much of the remaining two thirds of the difference in productivity growth. In terms of investment, IT has had about the same level of effectiveness in Europe as in the United States with many of the same caveats about applicability. Remaining differences in productivity growth can best be explained by the plethora of regulatory factors already discussed.

E. Capital Intensity

Capital intensity is the amount of capital per worker within a sector. Increased capital intensity does not necessarily translate into increased labour productivity because capital may still be used more efficiently or less efficiently by workers within different countries. In German manufacturing, for example, capital intensity has always been greater than in the United States since labour tends to be less flexible and more costly, so that capital is substituted for labour to a higher degree. At the same time, however, that capital is not used efficiently, so capital and hence labour productivity are lower. As pointed out in MGI (1996a), it is often the case that capital is used efficiently or inefficiently regardless of the level of investment, suggesting that the issue is a managerial one.

Low capital intensity was the key area for improvement outlined in the MGI study of the United Kingdom (MGI, 1998). In both manufacturing and service sectors, the United Kingdom's capital intensity is about 20 per cent lower than in the United States and 30 per cent lower than in either France or Germany. To a certain extent this explains

the United Kingdom's low level of labour productivity relative to the United States, France, and Germany. Labour is much cheaper in the United Kingdom than in France or Germany, and so labour has been substituted for capital in a reverse of the situation in Germany. With more low-skill workers and less capital for each to use, labour productivity is lower. However, this does not entirely explain the discrepancy in total factor productivity with these other countries because capital productivity in the United Kingdom is also low, again suggesting that efficient use is independent of the level of investment.

Most of the barriers to investment in the United Kingdom are in product markets, such as land use regulations that make it too costly to upgrade hundred-year-old hotels. There is also a lack of venture capital as there is in the Netherlands. The effects of this low capital intensity are widespread, however, and perhaps most noticeable in health care. In MGI (1996b) – a disease-by-disease study of health care productivity in the United States, the United Kingdom, and Germany – the United Kingdom trailed the United States in breast cancer, lung cancer, and gallstones treatment because of these constraints on capital investment and thus the slower adoption of IT treatment methods. Part of this is related to the regulatory environment in each country and the differing levels of competitiveness; the United States has insurance provider competition, HMOs, and service-based doctor's fees, while the health care system in the United Kingdom is centralized within the National Health Service and doctors are on fixed salaries. As a result, in some cases there is less incentive for innovative treatment and the quick adoption of new technology. It is worth noting that for some treatments the United Kingdom is actually more productive than the United States because of the NHS's ability to better integrate specialized care than in a competition-based insurance system. As a sector, health care is far too complex to simply prescribe a free-market system, but some of the United Kingdom's slow IT investment can be attributed to its government control.

In the United States, on the other hand, rapid IT adoption means that capital intensity has grown in nearly every sector since 1995. As we have seen, however, this has not resulted in productivity growth in every case. Capital intensity is often a necessary but not always sufficient condition for productivity.

F. IT Investment's Real Effectiveness

The main conclusion of MGI (2001) is that there is an unclear relationship between IT investment and productivity growth. Other than the six "jumping" sectors, the remaining 69 per cent of the U.S. economy accounted for only 1 per cent of the productivity growth acceleration, yet accounted for 62 per cent of the acceleration in IT intensity growth (Table 1). In particular, hotels, retail banking, and long-distance data transmission saw almost no productivity growth despite heavy IT investment, and some of the sectors that did grow, like retail, owe far more to basic managerial innovation than to technological development. In fact, the only two industries where IT investment undisputedly increased labour productivity were securities and telecom.

The key to IT investment is "vertical" investment, or industry-specific investment that affects the core production process within the industry. Online trading in the securities industry is a perfect example, because it all but eliminates the more labour-intensive traditional methods. In contrast, there are other examples where IT investment has not been timed well, in terms of being poorly coordinated with consumer preferences or too focused on uncertain future gains. Online banking systems in the United States did not lead to immediate productivity gains in the U.S. banking sector because U.S. consumers have been slow to adopt electronic banking. In addition, some of the IT investment in retail banking and most of the IT investment in the hotel industry was devoted to collecting extensive customer information that to this point has been underused. In most other cases, IT investment merely redesigns the product or service being offered without actually impacting the core production process.

Table 1: Sector Contributions to Labour Productivity and IT Capital Intensity Growth Acceleration in the United States

	Labour Productivity Growth Acceleration, 1987-1995 to 1995-1999			IT Capital Intensity Growth Acceleration, 1987-1995 to 1995-1999		
	Total Business Sector	Six "Jumping" Sectors	All Other Sectors	Total Business Sector	Six "Jumping" Sectors	All Other Sectors
Absolute contribution (percentage points)	1.33	1.32	0.01	7.9	3.0	4.9
Relative contribution (per cent)	100	99	1	100	38	62

Source: data taken from MGI (2001). Business sector labour productivity, as calculated by MGI, grew by 0.99 per cent per year in 1987-1995 and by 2.32 per cent per year in 1995-1999, an acceleration of 1.33 percentage points. Business sector IT capital intensity, as calculated by MGI, grew by 6.0 per cent per year in 1987-1995 and by 13.9 per cent per year in 1995-1999, an acceleration of 7.9 percentage points.

The 2002 McKinsey report on productivity growth in France and Germany outlined how IT investment is most useful in industries where it aids in the leveraging of scale, particularly in highly-concentrated industries. In fragmented industries (retail banking is again an example), IT investment is usually not standardized enough to become efficient on a sector-wide basis. Even when IT investment takes place in consolidated industries, however, it must be focused on immediate productivity gains and combined with managerial innovation to be effective in improving productivity.

III. Demand Factors

After establishing market conditions and ascertaining how managers will react to them, the final link in the chain is of course how consumers will respond to the behaviour

of the firm. If a competitive market forces a firm to innovate in order to create better goods and services at lower prices (and costs), then there should be an increase in demand for those improved products, which should more than justify the initial costs of innovation and increase firm profits. As the rest of the industry reacts to this leader firm – Wal-Mart, for example – the industry becomes even more competitive and the cycle of innovation and productivity begins again.

That said, there are still independent demand factors that affect how consumers will behave toward firms, and in most cases entire sectors must adjust their practices accordingly. Briefly, income levels, cyclical demand factors, and general consumer preferences can all affect the behaviour and hence productivity of a firm.

A. Income

One influence on consumer behaviour is the average disposable income level. As income increases, consumers tend to shift their focus away from necessities and concentrate more expensive goods, services (particularly in retail), and convenience in general. In retail, for example, as incomes rise the demand for luxury goods increases. As these goods tend to have large margins while their sale is associated with the same labour input as other goods, productivity in terms of current dollar value added per hour also rises. Despite concerns in the United States that the success of such chains as Wal-Mart, Costco, and Target signified a demand shift toward mass-produced, low-value-added goods where cheap prices were the most important factor, according to MGI (2001), substitution toward high-value goods in fact represented nearly half of the large jump in productivity growth in retail between 1987-1995 and 1995-2000.[5]

In the restaurant industry, MGI (1992) put the United States ahead of both France and Germany in terms of labour productivity levels, in part because of its enormous fast food sector with quick, standardized production and low prices. Average incomes in the United States are higher than in Western Europe, and although it may seem counter-intuitive, as incomes rise fast food consumption tends to increase. This is primarily because part of the trade-off for higher incomes in the United States is more hours worked per week, and so fast food consumption mostly represents convenience in terms of time. The high demand for fast food encourages locations to develop standardized production processes, which leads to high productivity levels. Given this high productivity and the fact that fast food outlets comprise almost half of the restaurant sector in the United States (as opposed to less than 10 per cent in both France and Germany), the U.S. restaurant sector as a whole is more productive than that in European countries. This is true even without making an adjustment for the fact that lower wages

[5] An increase in the average price of a firm's output, even though it directly increases current dollar value added per hour, does not necessarily result in productivity growth in terms of an increase in real (physical) value added per hour, since the price increase could be due only to general inflation. However, MGI (2001) studies the increase in the average price per unit sold by general merchandisers in the United States in 1987-1999 that was due to the substitution away from low-priced goods and toward higher-priced goods within several commodity categories. Such substitution is not linked to general inflation and does result in growth in real value added.

in the United States allow U.S. restaurants to provide more services that European restaurants.

To the extent that average income can affect productivity through consumer behaviour, however, average income is in turn determined by productivity. It is therefore difficult to treat income growth as an independent policy instrument, as it is typically productivity that is looked to in improving average income.

B. Structural vs. Cyclical Demand

One of the issues examined in the MGI (2001) report on U.S. productivity growth was how much of the productivity growth acceleration after 1995 was structural (i.e. permanent) and how much was simply based on cyclical demand factors that would eventually lapse. As we have already seen, for example, the late 1990s stock market boom was a temporary phenomenon, and half of the productivity growth in the securities sector ended up being unsustainable. Most of the remaining growth in other sectors, however, such as through Wal-Mart's managerial practices or wireless upgrading in telecom, could best be characterized as structural. This suggests that the growth rate of labour productivity in 1995-1999 will be mostly sustainable in the future, even in the face of a temporary recession. There will still be cyclical growth and decline stemming mostly from cyclical demand factors, but the source and nature of these factors are difficult to predict. One likely possibility is that growth in demand for personal computers (and thus for semiconductors) will eventually slow as initial adoption becomes complete, and that productivity growth in these sectors will be affected by this slower demand growth. In most cases, however, cyclical demand factors only reveal themselves after they have run their course.

C. Preferences and Output Mix

The most obvious example of the influence of consumer preferences is the fact that firms within a sector usually vary their output mix, or the variety and quality of their products. This can affect productivity because certain countries or regions may have preferences for goods whose production is associated with a higher or lower level of productivity. A third of the German electronics industry, for example, is devoted to producing TVs and radios versus only about 10 per cent of the Japanese electronics industry, which produces far more VCRs and DVD players. Since televisions create far more value added per hour of work, this skews productivity figures in favour of the German electronics industry (at least in this one small way). The same is true in the United States, where 50 per cent of the consumer electronics industry is devoted to television production (MGI, 1993). Furthermore, Japan has always specialized in the development of cutting-edge products, which tend to be highly capital-intensive until they are produced on a much wider scale.

There are many other examples. Germany's food processing sector has far more bakeries per capita than the United States or Japan. A full quarter of Japan's food sector makes goods that are not produced or consumed in any other country. German

consumers prefer powder detergent to liquid detergent, which lowers labour productivity because of the more labour intensive process required to produce it. Americans use their telephone and utility networks much more heavily than their European counterparts. Americans make far more bank transactions per capita. And as mentioned, the income advantage in the United States has shifted its retail sector slightly in the direction of more high-value goods. In many of their studies, MGI considers these factors and attempts to adjust productivity figures accordingly.

Section Two: Insights on Canada-U.S. Industry Productivity Gaps from the MGI Studies

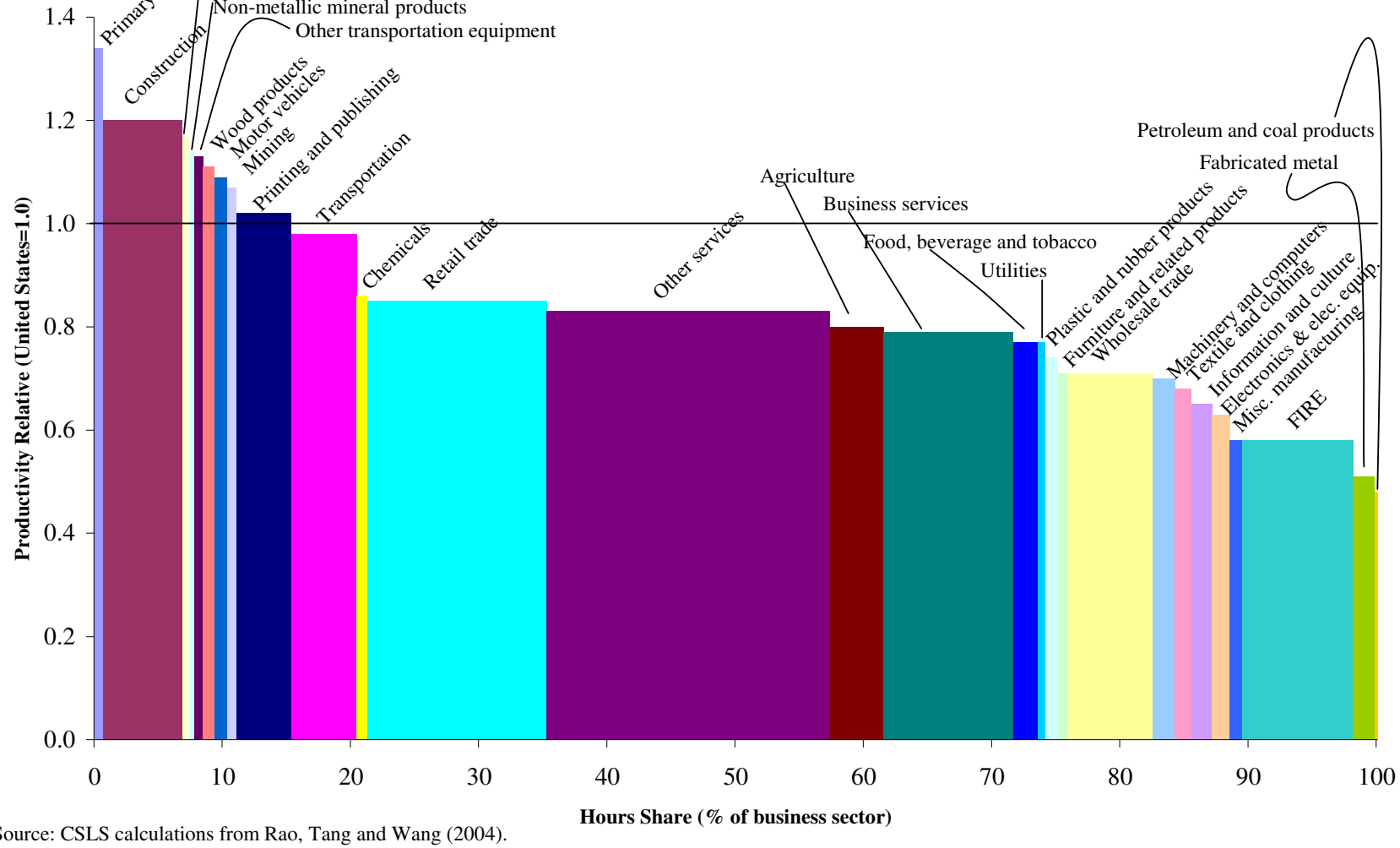
The McKinsey Global Institute has not produced a report on Canadian productivity. The objective of this section is to assess whether the findings from the McKinsey productivity studies on industry productivity differentials between the United States and a number of major developed and developing countries have relevance for the explanation of industry productivity differentials between the United States and Canada.

According to a recent Industry Canada study on Canada-U.S. productivity relatives by Rao, Tang, and Wang (2004), out of 28 industries in Canada in 1999, 19 had labour productivity levels lower than their U.S. counterparts. These industries, in ascending order of the productivity gap (or descending order of the productivity relative) were transportation; chemicals; retail trade; other services (repair and maintenance, personal and laundry services and religious, civic and professional organizations); agriculture; business services; food, beverage and tobacco; utilities; plastic and rubber products; furniture and related products; wholesale trade; machinery and computers; textiles and clothing; information and cultural industries; electronics and electrical equipment; finance, insurance and real estate; miscellaneous manufacturing; fabricated metal; and petroleum and coal products.

In 1999 the level of output per hour in the overall Canadian business sector was 82 per cent that in the U.S. business sector. Three of the four major sectors had productivity levels below their U.S. counterparts, with the service sector at 79 per cent of the U.S. level, the manufacturing sector at 82 per cent, and the primary sector at 84 per cent. In contrast, the Canadian construction industry had a level of output per hour above that in the U.S. construction industry, at 120 per cent of the U.S. level. Chart 1 shows the labour productivity relatives in all 28 industries in 1999, with the width of each of the columns representing the share of hours worked in the given industry in total business sector hours worked. Although nine of the industries did have productivity relatives above one (i.e. productivity levels above those of their U.S. counterparts), Chart 1 makes clear that these nine industries represent only a small share of the business sector, namely 15.3 per cent.

In some respects, the Canadian economy is a bit of a hybrid between the U.S. free-market system and the more sheltered, socially-conscious systems of countries like France or Sweden. Canada is more globally-exposed than most EU countries, yet it also

Chart 1: Industry Levels of Output per Hour in Canada Relative to the United States, 1999



Source: CSLS calculations from Rao, Tang and Wang (2004).

retains a certain level of trade protection and restricts entry to some domestic sectors. It also has a more developed welfare state than the United States in terms of more government control of social programs such as health care and pensions. Canada is more unionized than the United States, although the average real minimum wage is about equivalent. This section examines differences between Canada and the United States in these and other areas, in the context of the Canada-U.S. industry productivity gaps and the factors identified by MGI as playing a large role in determining productivity performance.

As noted earlier in the paper, MGI identifies three sets of factors affecting productivity:

- competitive intensity within a country, both in terms of direct regulation such as trade protection and indirect regulations such as minimum wage;
- the reaction of mangers to competitive conditions and their desire and ability to adopt best-practices to improve productivity; and
- the influence of demand factors on firm and industry behaviour.

I. Competitive Intensity

It is possible that competition is on average less intense in Canada than in the United States, particularly in service-producing industries that are less subject to international competition than goods-producing industries and have a smaller market in Canada. The OECD (2004), in its 2004 survey of Canada, provides an in-depth analysis of product market competition and find that, out of 21 OECD countries, Canada scored 11th according to a composite competition indicator, compared to a 4th place ranking for the United States.[6] The large labour productivity gaps in finance, insurance and real estate and in information and cultural industries may hence stem in part from a less competitive environment. Equally, the high productivity levels of natural resource industries such as primary metals, wood products, and mining are likely directly related to the competitive pressures these industries face to compete on world markets

However, the surprisingly high labour productivity relative (120 per cent of the U.S. level) for construction, a sheltered, non-traded industry, does not fit the pattern, unless the domestic competitive intensity of the sector is greater in Canada than in the United States. This may in fact be the case. OECD (2004:Figure 2.4) examines average mark-ups to infer the level of concentration in a given industry and hence to proxy the level of competitive intensity. The Canadian construction industry had the lowest mark-ups on average over the past two decades across 10 OECD countries, while the U.S. construction industry was in 7th place. This suggests that the Canadian construction

[6] Details on this composite indicator can be found in Nicoletti and Scarpetta (2003) and OECD (2004). The indicator increases (and product market competition decreases) with increases in, for example, barriers to entry, price controls, public ownership, barriers to competition, and limits on foreign ownership.

industry, to a much larger degree than the U.S. industry, is characterized by a number of small firms that compete vigorously with one another and hence must achieve a high level of productivity to survive.

American anti-trust law appears more aggressive in challenging large concentrations of corporate power (e.g. AT&T, Microsoft) than Canadian competition policy. OECD (2004) quotes Ross (2004) in stating that the Canadian Competition Act still faces some challenges in providing Canada with a fully effective anti-trust regime. Some suggestions for improvement include authorizing monetary penalties for certain civil violations, and permitting the ready prosecution of cartels while allowing for more refined examination of other economic conduct.

However, OECD (2004) sees barriers to foreign direct investment as Canada's largest weakness in terms of product market competition. The composite competitiveness indicator mentioned above is based on three underlying dimensions, namely economic regulation, administrative regulation, and barriers to trade and investment. Canada actually compares favourable to the United States on the first two of these dimensions; but when it comes to restrictions on foreign direct investment in 1998-2000, Canada was in 27th place out of 28 OECD countries.

Restrictions on foreign ownership and control in certain industries such as the cultural industries (e.g. book retailing, newspapers) and banking may reduce competitive pressures, particularly in situations where domestic competition is not intense. Indeed, as noted above, there are large labour productivity level gaps in cultural and informational industries and FIRE, although more industry disaggregation is needed to ascertain if it is the protected industries within these broad industry groupings that are responsible for Canada's lower productivity levels. Business services and retail and wholesale trade are industries in which Canada has large labour productivity gaps with the United States and that OECD (2003) has identified as industries that have a high degree of foreign direct investment restrictions relative to the United States.[7]

Such restrictions may be less harmful to productivity in industries where there is robust domestic competition such as air passenger transport. Indeed, Canada's level of labour productivity in transportation is comparable to that in the United States. OECD (2003) shows that restrictions on foreign direct investment in this industry are slightly higher in the United States than in Canada, but are high in both countries relative to other OECD countries.[8]

Unlike many countries studied by MGI, Canadian industries are not heavily sheltered from international trade. In addition, trade barriers have fallen greatly in recent

[7] It should be noted, however, that foreign direct investment restrictions are found by OECD (2003) to be higher in the Canadian construction industry than in the U.S. industry, but as already noted, Canada has a large labour productivity advantage over the United States in this industry.

[8] OECD (2003) contains three separate studies on foreign direct investment in OECD countries. These detailed data by country and industry are not available directly from the three studies, but are available from the underlying OECD database.

decades. But non-tariff barriers are still important in certain sectors such as agriculture. Restrictions on imports in the egg, poultry, and dairy industries administered by marketing boards certainly have reduced competitive pressures and may have contributed to the relatively low labour productivity level in agriculture. While trade barriers have greatly fallen in the context of the North American Free Trade Agreement (NAFTA), restrictions on some labour intensive goods from other countries remain. The low labour productivity levels relative to those in the United States in furniture and related products, textiles and clothing, plastic and rubber products, and food, beverage and tobacco may reflect the negative impact of these barriers on competition and productivity. OECD (2004) notes as well that some restrictions still remain on inter-provincial trade, which could especially by detrimental to productivity in personal service industries (which are included in the broad other services category, with a productivity relative of 83 per cent of the U.S. level, in Chart 1).

Canada, following the lead of the United States, has deregulated many sectors of the economy in recent years, including air passenger transport, trucking, and much of telecommunications. The comparable labour productivity levels between Canada and the United States in the transportation industry may reflect this relative lack of regulation common to both countries. Again, greater disaggregation of productivity levels in the transportation industry is needed. Outside of agriculture, there are few industries that are now much more heavily regulated in Canada than in the United States, in contrast to other countries.

One industry that is perhaps more heavily regulated in Canada than in the United States, or in any case faces a high degree of regulation, is the electricity generation industry. This industry is included in the utilities industry, with a productivity relative of 77 per cent of the U.S. level, in Chart 1. OECD (2004) states that competition in the Canadian electricity industry as a whole could be improved if the successful electricity deregulation in Alberta could be emulated by other provinces, and suggests also that the less successful deregulation in Ontario can provide additional lessons. OECD (2004) shows that the electricity industry in Canada, besides experiencing slow productivity growth in the 1990s and being subject to a large degree of regulation, is also characterized by high concentration (with the highest mark-ups among 10 OECD countries); and OECD (2003) shows that this industry also faces high restrictions on foreign direct investment.

Canada's minimum wage (a weighted average of provincial minimum wages) is low by European standards and comparable to that in the United States (OECD 1998:Tables 2.2 and 2.3). This is true whether converted to U.S. dollars based on market exchange rates or purchasing power parity, and also in terms of the minimum wage as a proportion of the median wage.[9] Consequently, it is unlikely that productivity levels have evolved differently in the two countries because of this factor. This lies in contrast

[9] These data are for 1997, and are not available for other years. However, data from the OECD Labour Force Statistics online database, available for free at www.oecd.org under Statistics Portal and Labour, show that the ratio of the minimum wage to the median wage has followed a similar trend in Canada as in the United States over most of the past 25 years or more.

to the situation in Europe where the minimum wage has risen significantly and lead to the disappearance of many low wage service jobs, increasing average labour productivity through a composition effect.

Canada's unionization rate is more than double that in the United States.[10] The impact of unions on productivity is controversial. Unions can have positive effects on labour productivity by providing voice for workers, thereby reducing turnover, and by increasing wages, inducing greater substitution of capital for labour. They can also have a negative effect through the imposition of work rules which reduce the employer's ability to reallocate workers to appropriate tasks and to adjust production quickly in response to changes in the external environment. The McKinsey Global Institute productivity studies focus on this negative role and document cases in Europe where union-imposed work rules have reduced productivity, particularly in low-competition industries (and cases where work rules actually produced world-class productivity results). However, it is unlikely that work rules are significantly different between most Canadian and U.S. industries despite the higher unionization rate in this country. Indeed, there are few industries in Canada that currently have rigid work rules imposed by unions. Many of these rules that did exist in the past have been targeted by employers in collective bargaining and given up by unions.

The McKinsey Global Institute identifies zoning laws as a major impediment to productivity, particularly in housing and the retail sector, because such laws prevent the construction of large standardized housing developments and large retail outlets. Zoning laws in Canada are likely much closer to practices in the United States than in Europe and hence it is unlikely that this factor can account for much if any of the labour productivity gap. Indeed, the level of labour productivity in the construction industry is much higher in Canada than in the United States. If this is partially due to a greater ability of the Canadian industry to focus on the construction of large groups of standardized houses, it may suggest that zoning laws are more conducive to productivity in this country than in the United States.

II. Managerial factors

In addition to their emphasis on competitive conditions, the MGI studies also look at traditional drivers of productivity growth such as physical and human capital accumulation and innovation. The studies see managerial behaviour as the key determinant of the drivers and make use of the concept of "best practice" to assess

[10] Data from the OECD Labour Force Statistics online database, available for free at www.oecd.org under Statistics Portal and Labour, show that the rate of union density (union members as a proportion of the workforce) was 28.2 per cent in Canada in 2002, compared to just 12.6 per cent for the same year in the United States (based on household surveys). This compares, for example, to 22.9 per cent in Australia, 30.4 per cent in the United Kingdom, and 78.0 per cent in Sweden. The rate of union density declined slightly between 1998 and 2002 in both Canada and the United States. The rate declined markedly in Canada and the United States between 1984 (the earliest year for which Canadian survey-based data are available) and 1998, from 34.7 per cent to 28.5 per cent and from 18.2 per cent to 13.4 per cent respectively.

differences in the drivers across countries and implications of these differences for industry productivity levels.

It was earlier mentioned that the MGI found that with the right managerial practices, the productivity of workers on the shop floor can be identical in different countries even when the educational attainment of the workers differs dramatically. This is an important insight for the ability to raise productivity in countries with low levels of educational attainment, but it has little relevance for Canada-U.S. productivity differentials as the average educational attainment in Canada is comparable to that in the United States. It is of course possible that the skill levels of Canadian workers are below their U.S. counterparts because of a greater effort of U.S. employers in training and motivating their workers, although this appears unlikely.

The MGI studies of course recognize the importance of differences in capital intensity for industry differences in labour productivity across countries and they use the basic growth accounting techniques. From this perspective they would likely accept the results of Rao, Tang and Wang (2004), which suggest that about 30 per cent of the business sector Canada-U.S. labour productivity gap is attributable to the greater capital intensity of production in the United States. But the MGI studies also note that in addition to the quantity of capital per worker employed determining productivity, it is also the effectiveness with which the capital is actually used in production that affects productivity. However, there are no obvious examples of where capital is employed much less productively in Canada than in the United States.

It is now well recognized that information and communication technologies (ICTs) accounted for much of the acceleration in productivity growth in the United States in the second half of the 1990s. MGI has discussed this issue in the context of the contribution of Wal-Mart and other retail chains to aggregate productivity growth achieved in part through the application of ICTs. Indeed, MGI (2001) finds that one quarter of the post-1995 pick-up in U.S. productivity growth was due to this one sector. Canada's retail industry in 1999 attained only 85 per cent of the labour productivity level of its U.S. counterpart, suggesting that our lag in the application of ICTs linked to managerial behaviour may explain much of the continued gap.

OECD (2004:Table 2.4) shows that spending on research and development as a proportion of GDP in Canada is below the OECD average and far below the U.S. average, although this ratio has been increasing steadily since 1981 in Canada and in 2001 exceeded that in many European countries. However, this is not necessarily a good indication of how many new technologies Canadian firms adopt or how rapidly or effectively they adopt them, since these technologies can be imported and implemented with little independent research and development activity.

MGI stresses the role of management in the adoption by firms of new technologies and in the effective use of these technologies in terms of increasing productivity, whether they are developed in house or imported from other industries or countries. And in the MGI (1995a) study on Australia it is found that a large factor

behind slow adoption of product and process innovations – and hence a large factor in the lower productivity performance of several Australian industries relative to the United States – was low management aspirations. Such aspirations are in turn closely linked to the competitive environment. It is therefore possible that the differences in competitive intensity between Canada and the United States, besides directly decreasing productivity in Canadian industries relative to their U.S. counterparts as discussed above, also indirectly affect productivity by lowering incentives to managers to rapidly adopt new technologies.

III. Consumer Behaviour

In addition to competitive conditions and managerial behaviour, MGI studies have focused on how consumers respond to the choices made by firms and the implications for productivity. The level of income and income distribution influence consumption patterns. According to MGI, a shift in demand toward high-value goods has taken place in U.S. retailing and this development has contributed significantly to productivity growth in the sector. The increase in income inequality in the United States may be behind this demand shift. There has been less of an increase in income inequality in Canada which may account for our slower productivity growth in retail trade.

MGI productivity studies found that differences in output mixes within an industry based on different consumer preferences can account for productivity differences across countries. It is unlikely that this factor is very important in explaining industry productivity differences between Canada and the United States given the greater similarities in tastes between Canadians and Americans. Canadian tastes tend to closely follow those south of the border in most areas.

Conclusion

The McKinsey Global Institute productivity studies provide fascinating insights into the differences in productivity levels at the industry level between the United States and other major developed and developing countries. Some of these insights may be relevant to Canada. But given the similarities between Canada and the United States, which are much greater than between the United States and Europe, Japan, Brazil, and India, the findings of the MGI studies cannot be indiscriminately applied to Canada-U.S. productivity differences at the industry level. Further work is needed to dig more deeply into the Canada-U.S. industry productivity gaps, although the MGI studies do put forward a number of useful working hypotheses for such analysis.

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